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## THE CRISP CODE FOR NUCLEAR REACTIONS

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The CRISP package performs the intranuclear cascade process and the evaporation/fission competition resulting in a code that represents a good tool to describe complexes characteristics of the nuclear reactions, and opens the opportunity for applications in different fields, such as medical physics, photonuclear reactions, spallation or fission process initiated by different probes and in Accelerator Driven Systems, where precise description of energetic and angular neutron distribution, neutron multiplicity and spallation products information are needed.

In the CRISP model, was included the time-sequence characteristics of the MCMC code and the evaporation/fission competition process model of the MCEF [1,2]. Also, includes improvements in the code, as the excitation of nucleonic resonances heavier than Delta; the initial nuclear ground state construction according to the Fermi model and Pauli principle; and a more realistic Pauli blocking mechanism. Some consequences of the improvements performed in the code will be discussed, as, e.g., the absence of Pauli Principle violations observed in the occupation number for single-particle bound states, and the absence the lack of the unphysical nuclear boiling, which shows up in some Monte Carlo code.

At the present two other reaction channels are being includes, namely, the quasi-deuteron mechanism at energies between 40 MeV and 140 MeV, and the photon hadronization process, which gives rise to the shadowing effect. With these modifications it will be possible to use the CRISP code for energies above 40 MeV up to a few GeV not only for reactions initiated by protons and neutrons, but also by photons.

We will describe some of the consequences resulting of these modifications and present some results in order to illustrate the possible applications, for which this package can be used, mainly those related to spallation process involving high energy protons.

[1] A. Deppman et al., Nucl. Instr. Meth. B211 (2003) 15-21.

[2] A. Deppman et al., Computer Physics Communication 145 (2002) 385.